CHAPTER 3 Ancillary Equipment and Troubleshooting Tips

3.1 Global Positioning Satellite (GPS)

3.1.1 OVERVIEW

There are 26 geo-synchronous global positioning satellite systems (GPS) orbiting the earth providing accurate time, position and altitude data. GPS receiver lock-on from a minimum of two satellites is required for accurate time code reception.

3.1.2 INSTALLATION

The GPS receiver is installed inside the top space of the of the DVR2 rack. The contractor will provide all hardware necessary to install the GPS. The hardware required is as follows:

QTY.	ITEM
1	GPS antenna
1	Inline amplifier
1	GPS receiver
1	500 ft. coaxial cable
4	NO. 10 pan-head screws
4	self-mounting nuts
4FT	PVC piping
4	Connectors (coaxial)

1) The GPS receiver and in-line amplifier are mounted in the general location in the top area of the rack. The power cable is installed from the AC strip to the back of the GPS receiver. The entire coaxial cable (500 feet) is installed from the antenna to the rack in the path designated by site personnel. Excess cable is rolled up and placed at the bottom of the rack.

2) The GPS antenna is installed at the location (usually the building rooftop) selected by local personnel.

3.1.3 OPERATION

Various models of GPS systems are used with DVR2 installations. In majority of the installations the True Time Model XL-AK GPS receiver is used. The following is a description of the operation of this particular GPS receiver model.

The True Time Model XL-AK GPS receiver has a single tri-color (red, orange or green) LED indicator marked "Status" on the front panel to indicate the fault status of the GPS receiver system. In general, faults are only indicated if they are enabled. However, even if faults are not enabled, the presence of the time error fault will always be indicated by a solid green LED. Normal operation within the user-defined time error threshold is indicated by the green LED blinking at a rate of one pulse per second. The following details the Status indicator's meanings.

State	Meaning	Comments
Off	Power off	
Solid Red	Major enabled alarm fault	Possible antenna disconnect
Solid Orange	Minor enabled alarm fault, time error outside threshold	Possible: receiver out of lock; looking for satellites; GPS unlocked
Blinking Orange	Minor enabled alarm fault, time error within threshold	Possible: low battery condition; antenna briefly loses satellite communication
Solid Green	No enabled alarm faults, time error outside threshold	Locks to XL Board (not to GPS).
Blinking Green	No enabled alarm faults, time error within threshold	Normal operation within the user-defined time error threshold.

The above information is relevant only to the True Time Model XL-AK GPS receiver.

For other types of GPS systems refer to documentation provided with the equipment.

3.2 Troubleshooting Tips

3.2.1 GLOBAL POSITIONING SATELLITE (GPS)

PROBLEM: GPS will not lock onto satellite.
POSSIBLE SOLUTION: Check cable connection at both ends, check inline amplifier, reset GPS, check for correct GPS coordinates.

PROBLEM: GPS display will not illuminate.
POSSIBLE SOLUTION: Check connection of the power cord, check dimmer switch.

PROBLEM: GPS does not sync with the DRU.
POSSIBLE SOLUTION: Make sure the DRU is setup for external clock. Recheck all connections.

PROBLEM: GPS does not sync with the Workstation.
POSSIBLE SOLUTION: Ensure that the Workstation is set up for external clock. Re-check all connections, including the connection from the GPS Receiver (IRIG-B output) to the DRU (J2 input at LAF I/O).

3.2.2 UNINTERRUPTABLE POWER SUPPLY (UPS)

PROBLEM: UPS will not power up.
POSSIBLE SOLUTION: Check power connection, check fuses.

PROBLEM: UPS has beeping sound.
POSSIBLE SOLUTION: UPS is on batteries. Check connection.

PROBLEM: UPS will not power system without commercial power.
POSSIBLE SOLUTION: Check input and output voltages.

3.2.3 WORKSTATION (WS)

PROBLEM: PC will not boot-up to Windows.
POSSIBLE SOLUTION: Push reset button, check software, check AUTOEXEC.BAT and CONFIG.SYS files.

PROBLEM: PC seems to be locked up.
POSSIBLE SOLUTION: Check keyboard connection, reboot PC by using CONTROL, ALT, and DELETE.

PROBLEM: No video on monitor.
POSSIBLE SOLUTION: Check connection, check power connection and power indications, check brightness level, replace video card.

PROBLEM: No audio output through speakers.
POSSIBLE SOLUTION: Check connections to speakers and the DRUs, check speaker volume, via software ensure the correct audio output is selected, via software check output level control, via software check input level control, and for reproducer systems ensure the cassette recorder is in record mode.

3.2.4 ETHERNET HUB

PROBLEM: Cannot communicate with DRU.
POSSIBLE SOLUTION: Check connections to hub, verify that each connector plugged into the hub illuminates the LED, check power connection.

PROBLEM: (If applicable) The reproducer workstation will not communicate with the recorder.
POSSIBLE SOLUTION: Ensure the reproducer and the recorder are networked together, ensure the correct ports on the Ethernet hubs are used, ensure Ethernet hubs are properly connected by verifying the green LED is lit, check power to Ethernet hubs.

3.2.5 DUAL CASSETTE RECORDER

PROBLEM: Recorder will not record.
POSSIBLE SOLUTION: Check to see if tape is inserted.

PROBLEM: Tape does not display accurate time on clock when played back.
POSSIBLE SOLUTION: Check connections from clock to display.

PROBLEM: Will record but there is no audio on tape.
POSSIBLE SOLUTION: Check the audio input connection to the dual cassette recorder.